National Marine Fisheries Service January 28, 2010
Alaska Region, Inseason Management Highlights

2011 catch is through January 22 and 2010 catch is through January 23 unless otherwise stated.

Bering Sea and Aleutian Islands

Bering Sea Pollock

Eight American Fisheries Act (AFA) catcher/processors (C/Ps) are targeting yellowfin sole and six are targeting pollock. Fourteen catcher vessels delivering shoreside are targeted pollock in 2011 compared to 28 catcher vessels in 2010. For the first days of the fishery, total Bering Sea pollock catch is 4,471 metric tons (mt) in 2011 compared to 4,990 mt in 2010 for the same time period. The A season allocations are: CDQ 50,080 metric tons (mt), inshore 218,599 mt, catcher/processor (C/P) 174,879 mt, and mothership 43,720 mt.

NMFS is reallocating pollock TAC from the Aleutian Islands to the Bering Sea. This increases the Bering Sea allocations by 1,900 mt for CDQ and 12,500 mt for the inshore, C/P, and mothership directed fisheries.

Pacific cod

The hook-and-line, pot, and jig fisheries started January 1, and trawl fisheries started January 20.

Hook-and-line C/Ps

In 2011, 23 hook-and-line C/Ps are participating in the Pacific cod fishery (36 in 2010). The 2011 A season TAC is 50,354 mt. The hook-and-line C/Ps are operating under a voluntary cooperative, and the A season fishery may remain open until the B season allocation becomes available June 10. In 2010, the fishery closed February 9.

Week	mt	Week	mt
1/01/2011	167	1/02/2010	2,231
1/08/2011	1,811	1/09/2010	7,546
1/15/2011	3,070	1/16/2010	6,094
1/22/2011	2,881	1/23/2010	5,223
Total	7,929	Total	21,094
TAC	50,354		37,230
Remaining	42,425		16,136

Pot catcher vessels

The 2011 A season fishery for pot catcher vessels greater than or equal to 60 ft length overall closed January 21 with 28 vessels taking 9,708 mt of the 8,685 mt allocation. The 2010 fishery closed January 28 with 28 vessels taking 7,168 mt of the 6,422 mt allocation.

Week	mt	Week	mt
1/01/2011	656	1/02/2010	735
1/08/2011	2,312	1/09/2010	1,260
1/15/2011	4,317	1/16/2010	1,925
1/22/2011	2,421	1/23/2010	1,738
Total	9,708	Total	5,659
TAC	8,685		6,718
Remaining	-1,023		1,059

Pot C/Ps

The 2011 A season pot C/Ps fishery closed January 24 with four vessels taking 1,476 mt of the 1,551 mt A season allocation. The 2010 fishery closed February 23 with three vessels taking 1,243 mt of the 1,200 mt A season allocation.

Hook-and-line or pot gear less than 60 ft length overall

Nine catcher vessels (three hook-and-line, six pot) less than 60 ft LOA using hook-and-line or pot gear reported 1,141 mt of the 4,055 mt annual allocation compared to six vessels reporting 578 mt for the same time period in 2010. NMFS plans to reallocate the remaining amounts of the A season jig allocation to the less than 60 ft allocation. In 2010, the fishery closed March 25 and reopened April 30 to May 19 after NMFS reallocated 400 mt from the B season jig allocation.

Trawl catcher vessels

In 2011, 11 trawl catcher vessels targeting Pacific cod reported 284 mt compared to 10 vessels reporting 313 mt for the same time period in 2010. The total Pacific cod catch through January 22 is 339 mt (includes pelagic trawl gear) of the 33,290 mt A season allocation. In 2010, the A season closed March 12, 2010.

Flatfish

In 2010, eleven Amendment 80 C/Ps are targeting rock sole, and eight AFA C/Ps are targeting yellowfin sole.

Halibut mortality

Halibut mortality rates are preliminary and may change when more catch and observer data is reported in the catch accounting system. The table below compares the metric tons of halibut mortality and total groundfish catch by year through January 22, 2011 and January 23, 2010.

	2011	2010
BSAI trawl	18 / 10,417	70 / 13,472
BSAI hook-and-line	42 / 9,857	122 / 24,966
GOA trawl	58 / 3,077	44 / 3,791
GOA hook-and-line	72 / 6,485	40 / 4,216

Gulf of Alaska

Western GOA Pacific cod

The 2011 A season allocations are 12,304 mt for the inshore component and 1,367 mt for the offshore component. Through January 22, the inshore component has taken 2,702 mt compared to 1,356 mt through January 23, 2010. For the same time periods, the 2011 inshore component catch by gear is: pot 61%, hook-and-line gear 33%, and trawl gear 6%. The 2010 inshore component catch by gear is: pot 76%, hook-and-line gear 24%. Catch rates are expected to increase as effort moves to the GOA from the BSAI. In 2010, the A season fishery for inshore Pacific cod closed February 19, taking about 11,900 mt. The 2011 offshore component and non-AFA crab sideboard fisheries remain open.

Central GOA Pacific cod

The 2011 A season inshore fishery closed January 29 compared to January 31 in 2010. The 2011 A season allocations are 21,795 mt for inshore and 2,422 mt for offshore components. For the same time periods, the 2011 inshore component catch by gear is: pot 53%, hook-and-line 27%, trawl 19% and jig 1%. The 2010 inshore component catch by gear is: pot 48%, hook-and-line 25%, and trawl 27%. The 2011 offshore component remains open. In 2011, non-AFA crab sideboard fishery closed January 14 for the inshore component and January 21 for the offshore component.

Pollock

The A season allocations are 4,786 mt for 610, 11,895 mt for 620, and 4,475 mt for 630. Area 610 closed January 24 and NMFS plans a reopening after the inshore Pacific cod fishery closes. In area 620 no directed fishing has been reported and effort is expected to increase around late February or early March. Area 630 closed January 21 NMFS plans to reopen pollock later in the A season.

Bering Sea Aleutian Islands Catch Report (includes CDQ)

Through: 22-JAN-11

National Marine Fisheries Service
Alaska Region, Sustainable Fisheries
Catch Accounting

Bering Sea

Sea-sons	Account	Total Catch	Quota	Remaining Quota	% Taken	Last Wk Catch
	Other Rockfish (includes CDQ)	1	485	484	0%	0
	Pacific Ocean Perch (includes CDQ)	0	3,222	3,222	0%	0
	Sablefish (Hook-and-Line and Pot)	0	0	0	0%	0
	Sablefish CDQ (Hook-and-Line and Pot)	0	0	0	0%	0
	Sablefish (Trawl)	0	1,063	1,063	0%	0
	Sablefish CDQ (Trawl)	0	94	94	0%	0
	Greenland Turbot	0	3,145	3,145	0%	0
	Greenland Turbot CDQ	0	396	396	0%	0
X	Pollock, AFA Inshore	1,884	546,498	544,614	0%	1,884
X	Pollock, AFA Catcher Processor	2,043	437,198	435,155	0%	2,043
X	Pollock, AFA Mothership	545	109,300	108,755	0%	545
X	Pollock CDQ	1,571	125,200	123,629	1%	1,571
	Pollock, Incidental Catch, non-Bogoslof (includes CDQ)	897	33,804	32,907	3%	608
	Pollock, Incidental Catch, Bogoslof (includes CDQ)	0	150	150	0%	0

Note: All weights are in metric tons.

Report run on: January 28, 2011 5:15 AM

Aleutian Islands

Sea-sons	Account	Total Catch	Quota	Remaining Quota	% Taken	Last Wk Catch
	Other Rockfish (includes CDQ)	2	472	470	0%	2
	Pacific Ocean Perch, Eastern	13	3,733	3,720	0%	13
	Pacific Ocean Perch, Eastern CDQ	0	447	447	0%	0
	Pacific Ocean Perch, Central	0	3,777	3,777	0%	0
	Pacific Ocean Perch, Central CDQ	0	453	453	0%	0
	Pacific Ocean Perch, Western	0	5,787	5,787	0%	0
	Pacific Ocean Perch, Western CDQ	0	693	693	0%	0
	Rougheye Rockfish (includes CDQ) - BS + Eastern	0	234	234	0%	0
	Rougheye Rockfish (includes CDQ) - Central + Western	0	220	220	0%	0
	Atka Mackerel, Eastern ICA	0	75	75	0%	0
	Atka Mackerel, Eastern (Jig)	0	180	180	0%	0
X	Atka Mackerel, Eastern (Trawl)	402	35,734	35,332	1%	402
	Atka Mackerel, Eastern CDQ	0	4,312	4,312	0%	0
X	Atka Mackerel, Central (Trawl)	0	9,998	9,998	0%	0
	Atka Mackerel, Central ICA	0	75	75	0%	0
	Atka Mackerel, Central CDQ	0	1,207	1,207	0%	0
X	Atka Mackerel, Western (Trawl)	0	1,300	1,300	0%	0
	Atka Mackerel, Western ICA	0	40	40	0%	0
	Atka Mackerel, Western CDQ	0	161	161	0%	0
	Sablefish (Hook-and-Line and Pot)	0	0	0	0%	0
	Sablefish CDQ (Hook-and-Line and Pot)	0	0	0	0%	0
	Sablefish (Trawl)	0	395	395	0%	0
	Sablefish CDQ (Trawl)	0	35	35	0%	0
	Greenland Turbot (includes CDQ)	0	1,420	1,420	0%	0
X	Pollock	0	15,500	15,500	0%	0
X	Pollock CDQ	0	1,900	1,900	0%	0
X	Pollock, Incidental Catch (includes CDQ)	1	1,600	1,599	0%	1

Note: All weights are in metric tons.

Report run on: January 28, 2011 5:15 AM

Bering Sea Aleutian Islands

Sea-sons	Account	Total Catch	Quota	Remaining Quota	% Taken	Last Wk Catch
	Alaska Plaice (includes CDQ)	308	42,500	42,192	1%	308
	Arrowtooth Flounder	103	63,750	63,647	0%	58
	Arrowtooth Flounder CDQ	4	8,025	8,021	0%	4
	Flathead Sole	91	53,580	53,489	0%	82
	Flathead Sole CDQ	10	6,420	6,410	0%	10
	Kamchatka Flounder (includes CDQ)	4	17,700	17,696	0%	3
	Northern Rockfish (includes CDQ)	5	7,290	7,285	0%	5
	Other Flatfish (includes CDQ)	20	14,705	14,685	0%	19
X	Pacific Cod, Catcher Processor (AFA)	126	4,682	4,556	3%	126
X	Pacific Cod, Catcher Processor (Amendment 80)	107	27,277	27,170	0%	107
X	Pacific Cod, Catcher Vessel (Trawl)	339	44,987	44,648	1%	339
X	Pacific Cod, Catcher Processor (Hook-and-Line)	7,929	98,733	90,804	8%	2,881
X	Pacific Cod, Catcher Vessel (Hook-and-Line >= 60 ft)	0	405	405	0%	0
X	Pacific Cod, Catcher Processor (Pot)	1,370	3,041	1,671	45%	509
X	Pacific Cod, Catcher Vessel (Pot >= 60 ft)	9,708	17,030	7,322	57%	2,421
X	Pacific Cod (Jig)	0	2,850	2,850	0%	0
	Pacific Cod (Hook-and-Line and Pot < 60 ft)	1,141	4,055	2,914	28%	487
	Pacific Cod, Incidental Catch (Hook-and-Line and Pot)	0	500	500	0%	0
X	Pacific Cod CDQ	68	24,391	24,323	0%	68
	Rock Sole	1,319	80,370	79,051	2%	1,317
	Rock Sole CDQ	10	9,630	9,620	0%	10
	Shortraker Rockfish (includes CDQ)	0	387	387	0%	0
	Yellowfin Sole	3,100	190,209	187,109	2%	3,095
	Yellowfin Sole CDQ	1	22,791	22,790	0%	1
	Octopus (includes CDQ)	81	150	69	54%	23
	Sculpin (includes CDQ)	139	5,200	5,061	3%	68
	Shark (includes CDQ)	9	50	41	18%	2
	Skate (includes CDQ)	1,192	16,500	15,308	7%	675
	Squid (includes CDQ)	0	1,675	1,675	0%	0
Total:		**34,541**	**2,119,186**	**2,084,645**	**2%**	**19,686**

Other flatfish: all flatfish except Pacific halibut, flathead sole, Greenland turbot, rock sole, yellowfin sole, Kamchatka and arrowtooth flounder, and Alaska plaice.

Other rockfish: all Sebastes and Sebastolobus species except for Pacific ocean perch, northern, shortraker, and rougheye rockfish.

For changes to the harvest specifications refer to http://alaskafisheries.noaa.gov/2011/hschanges.htm

Note: All weights are in metric tons.

Report run on: January 28, 2011 5:15 AM

Bering Sea Chinook Salmon Bycatch Report (includes CDQ)

Through: 22-JAN-11

National Marine Fisheries Service
Alaska Region, Sustainable Fisheries
Catch Accounting

CDQ	Account	Total Catch	Allocation	Remaining Allocation	% Taken	Last Week Catch
	BS Chinook Salmon PSQ APICDA	0	686	686	0%	0
	BS Chinook Salmon PSQ BBEDC	1	1,028	1,027	0%	1
	BS Chinook Salmon PSQ CBSFA	0	244	244	0%	0
	BS Chinook Salmon PSQ CVRF	3	1,176	1,173	0%	3
	BS Chinook Salmon PSQ NSEDC	0	1,077	1,077	0%	0
	BS Chinook Salmon PSQ YDFDA	0	685	685	0%	0
	CDQ Total:	**4**	**4,896**	**4,892**	**0%**	**4**

AFA	Account	Total Catch	Allocation	Remaining Allocation	% Taken	Last Week Catch
	BS Chinook Salmon AFA COOP 101 IPA	0	10,772	10,772	0%	0
	BS Chinook Salmon AFA COOP 102 IPA	0	0	0	0%	0
	BS Chinook Salmon AFA COOP 103 IPA	0	3,131	3,131	0%	0
	BS Chinook Salmon AFA COOP 104 IPA	0	783	783	0%	0
	BS Chinook Salmon AFA COOP 105 IPA	1	3,688	3,687	0%	1
	BS Chinook Salmon AFA COOP 106 IPA	0	8,841	8,841	0%	0
	BS Chinook Salmon AFA COOP 107 IPA	0	6,175	6,175	0%	0
	BS Chinook Salmon AFA CP IPA	6	17,040	17,034	0%	6
	BS Chinook Salmon AFA M IPA	15	4,674	4,659	0%	15
	BS Chinook Salmon AFA Inshore OA IPA	0	0	0	0%	0
	BS Chinook Salmon AFA Inshore OA Non-IPA	0	0	0	0%	0
	AFA Total:	**22**	**55,104**	**55,082**	**0%**	**22**

TOTAL:		**26**	**60,000**	**59,974**	**0%**	**26**

Note: Catch and allocation values are numbers of fish

Report run on: January 28, 2011 5:16 AM

Bering Sea Aleutian Islands Prohibited Species Report (includes CDQ fisheries)

Through: 22-JAN-11

National Marine Fisheries Service
Alaska Region, Sustainable Fisheries
Catch Accounting

Chinook Salmon

Trawl Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
X	BS Pollock (Pelagic)	Count	22	55,104	55,082	0%	22
X	BS Chinook Salmon PSQ	Count	4	4,896	4,892	0%	4
X	AI Pollock (Pelagic)	Count	0	647	647	0%	0
X	AI Chinook Salmon PSQ	Count	0	53	53	0%	0
Total:			**26**	**60,700**	**60,674**	**0%**	**26**

Halibut Mortality

Non-Trawl Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Halibut Mortality (Non-Trawl)	MT	42	832	790	5%	13
Total:			**42**	**832**	**790**	**5%**	**13**

Trawl Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Halibut Mortality (Trawl)	MT	18	3,300	3,282	1%	18
Total:			**18**	**3,300**	**3,282**	**1%**	**18**

Trawl and Hook-and-Line Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Halibut Mortality PSQ	MT	1	393	392	0%	1
Total:			**1**	**393**	**392**	**0%**	**1**

Herring (includes CDQ fisheries)

Trawl Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Pacific Cod	MT	0	33	33	0%	0
	Rockfish	MT	0	12	12	0%	0
	Rock Sole, Flathead Sole, Other Flatfish	MT	0	33	33	0%	0
	Pollock, Atka Mackerel, Other Species	MT	0	247	247	0%	0
	Pollock Pelagic	MT	0	1,737	1,737	0%	0
	Yellowfin Sole	MT	0	195	195	0%	0
	Turbot, Arrowtooth, Kamchatka, Sablefish	MT	0	16	16	0%	0
Total:			**0**	**2,273**	**2,273**	**0%**	**0**

Report run on: January 28, 2011 5:15 AM

Opilio (Tanner) Crab - COBLZ

Trawl Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Opilio Crab	Count	55,814	3,884,550	3,828,736	1%	55,814
	Opilio Crab PSQ	Count	0	465,450	465,450	0%	0
Total:			**55,814**	**4,350,000**	**4,294,186**	**1%**	**55,814**

Bairdi Crab, Zone 1

Trawl Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Bairdi Crab	Count	577	741,190	740,613	0%	577
	Bairdi Crab PSQ	Count	0	88,810	88,810	0%	0
Total:			**577**	**830,000**	**829,423**	**0%**	**577**

Bairdi Crab, Zone 2

Trawl Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Bairdi Crab	Count	7,187	2,250,360	2,243,173	0%	7,187
	Bairdi Crab PSQ	Count	0	269,640	269,640	0%	0
Total:			**7,187**	**2,520,000**	**2,512,813**	**0%**	**7,187**

Red King Crab, Zone 1

Trawl Gear

Seasons	Account	Units	Total Catch	Limit	Remaining	% Taken	Last Wk Catch
	Red King Crab	Count	786	175,921	175,135	0%	786
	Red King Crab PSQ	Count	0	21,079	21,079	0%	0
Total:			**786**	**197,000**	**196,214**	**0%**	**786**

Other flatfish for PSC monitoring: all flatfish except Pacific halibut (a prohibited species), flathead sole, Greenland turbot, rock sole, and yellowfin sole.

COBLZ: C. Opilio Crab Bycatch Limitation Zone. 50 CFR 679.21(e) and Figure 13.

Zone 1: Federal Reporting Areas 508, 509, 512, 516.

Zone 2: Federal Reporting Areas 513, 517, 521.

Data is based on observer reports extrapolated to total groundfish harvest. Estimates for all weeks may change due to incorporation of late or corrected data.

Gulf of Alaska Catch Report **Through:** 22-JAN-11	**National Marine Fisheries Service** **Alaska Region, Sustainable Fisheries** **Catch Accounting**

Western, Central Pollock

Sea-sons	Account	Total Catch	Quota	Remaining Quota	% Taken	Last Wk Catch
X	Pollock, 610 Shumagin	24	27,031	27,007	0%	24
X	Pollock, 620 Chirikof	10	37,365	37,355	0%	2
X	Pollock, 630 Kodiak	73	20,235	20,162	0%	53

Western Gulf

Sea-sons	Account	Total Catch	Quota	Remaining Quota	% Taken	Last Wk Catch
	Arrowtooth Flounder	2	8,000	7,998	0%	2
	Deep Water Flatfish	0	530	530	0%	0
	Shallow Water Flatfish	5	4,500	4,495	0%	5
	Flathead Sole	0	2,000	2,000	0%	0
	Rex Sole	0	1,521	1,521	0%	0
	Pacific Ocean Perch	0	2,797	2,797	0%	0
	Rougheye Rockfish	0	81	81	0%	0
	Shortraker Rockfish	1	134	133	0%	1
	Thornyhead Rockfish	0	425	425	0%	0
	Pelagic Shelf Rockfish	0	607	607	0%	0
	Northern Rockfish	1	2,549	2,548	0%	0
	Other Rockfish	1	212	211	0%	0
X	Pacific Cod, Inshore	2,702	20,507	17,805	13%	1,267
X	Pacific Cod, Offshore	222	2,278	2,056	10%	222
	Sablefish (Hook-and-Line)	0	0	0	0%	0
	Sablefish (Trawl)	0	298	298	0%	0
	Big Skate	13	598	585	2%	6
	Longnose Skate	2	81	79	3%	2

Note: All weights are in metric tons.

Report run on: January 28, 2011 5:15 AM

Gulf of Alaska Catch Report **Through:** 22-JAN-11	**National Marine Fisheries Service** **Alaska Region, Sustainable Fisheries** **Catch Accounting**

Central Gulf

Sea-sons	Account	Total Catch	Quota	Remaining Quota	% Taken	Last Wk Catch
	Arrowtooth Flounder	18	30,000	29,982	0%	16
	Deep Water Flatfish	0	2,928	2,928	0%	0
	Shallow Water Flatfish	169	13,000	12,831	1%	167
	Flathead Sole	1	5,000	4,999	0%	1
	Rex Sole	0	6,312	6,312	0%	0
	Pacific Ocean Perch	0	10,377	10,377	0%	0
	Rougheye Rockfish	0	869	869	0%	0
	Shortraker Rockfish	0	325	325	0%	0
	Pelagic Shelf Rockfish	2	3,035	3,033	0%	0
	Northern Rockfish	4	2,259	2,255	0%	4
	Thornyhead Rockfish	0	637	637	0%	0
	Other Rockfish	2	507	505	0%	1
	Pacific Cod, Rockfish Program	0	0	0	0%	0
X	Pacific Cod, Inshore	14,059	36,326	22,267	39%	5,978
X	Pacific Cod, Offshore	937	4,036	3,099	23%	283
	Sablefish (Hook-and-Line)	0	0	0	0%	0
	Sablefish (Trawl)	0	808	808	0%	0
	Big Skate	173	2,049	1,876	8%	39
	Longnose Skate	89	2,009	1,920	4%	25

Eastern Gulf

Sea-sons	Account	Total Catch	Quota	Remaining Quota	% Taken	Last Wk Catch
	Rougheye Rockfish	0	363	363	0%	0
	Shortraker Rockfish	0	455	455	0%	0
	Thornyhead Rockfish	0	708	708	0%	0
	Pacific Cod, Inshore	0	1,758	1,758	0%	0
	Pacific Cod, Offshore	0	195	195	0%	0
	Big Skate	0	681	681	0%	0
	Longnose Skate	0	762	762	0%	0

Note: All weights are in metric tons.

Report run on: January 28, 2011 5:15 AM

West Yakutat

Sea-sons	Account	Total Catch	Quota	Remaining Quota	% Taken	Last Wk Catch
	Arrowtooth Flounder	0	2,500	2,500	0%	0
	Deep Water Flatfish	0	2,089	2,089	0%	0
	Shallow Water Flatfish	0	1,228	1,228	0%	0
	Flathead Sole	0	2,068	2,068	0%	0
	Rex Sole	0	871	871	0%	0
	Pacific Ocean Perch	0	1,937	1,937	0%	0
	Pelagic Shelf Rockfish	0	405	405	0%	0
	Other Rockfish	0	273	273	0%	0
	Pollock	0	2,339	2,339	0%	0
	Sablefish (Hook-and-Line)	0	0	0	0%	0
	Sablefish (Trawl)	0	189	189	0%	0

Southeast

Sea-sons	Account	Total Catch	Quota	Remaining Quota	% Taken	Last Wk Catch
	Arrowtooth Flounder	0	2,500	2,500	0%	0
	Deep Water Flatfish	0	778	778	0%	0
	Shallow Water Flatfish	0	1,334	1,334	0%	0
	Flathead Sole	0	1,508	1,508	0%	0
	Rex Sole	0	888	888	0%	0
	Pacific Ocean Perch	0	1,882	1,882	0%	0
	Pelagic Shelf Rockfish	0	680	680	0%	0
	Other Rockfish	0	200	200	0%	0
	Pollock	0	9,245	9,245	0%	0
	Demersal Shelf Rockfish	0	295	295	0%	0
	Sablefish (Hook-and-Line)	0	0	0	0%	0

Entire Gulf

Sea-sons	Account	Total Catch	Quota	Remaining Quota	% Taken	Last Wk Catch
	Atka Mackerel	0	2,000	2,000	0%	0
	Octopus	86	954	868	9%	30
	Sculpin	163	5,496	5,333	3%	64
	Shark	7	6,197	6,190	0%	0
	Other Skates	215	2,093	1,878	10%	79
	Squid	0	1,148	1,148	0%	0
Total:		**18,980**	**308,245**	**289,265**	**6%**	**8,272**

Note: All weights are in metric tons.

Report run on: January 28, 2011 5:15 AM

Gulf of Alaska Halibut Mortality Report

Through: 22-JAN-11

National Marine Fisheries Service
Alaska Region, Sustainable Fisheries
Catch Accounting

Trawl Fisheries

Deep Water Species Complex

Season	Begin	End	Total Catch	Limit	Limit Remaining	% Taken
1st Season	20-JAN-11	01-APR-11	0	100	100	0%
2nd Season	01-APR-11	01-JUL-11	0	300	300	0%
3rd Season	01-JUL-11	01-SEP-11	0	400	400	0%
4th Season	01-SEP-11	01-OCT-11	0	0	0	0%
Total:			**0**	**800**	**800**	**0%**

Shallow Water Species Complex

Season	Begin	End	Total Catch	Limit	Limit Remaining	% Taken
1st Season	20-JAN-11	01-APR-11	58	450	392	13%
2nd Season	01-APR-11	01-JUL-11	0	100	100	0%
3rd Season	01-JUL-11	01-SEP-11	0	200	200	0%
4th Season	01-SEP-11	01-OCT-11	0	150	150	0%
Total:			**58**	**900**	**842**	**6%**

Year-To-Date

Account	Total Catch	Limit	Limit Remaining	% Taken	Last Wk Catch
Trawl Fishery	58	2,000	1,942	3%	58

Other Hook-and-Line Fisheries

Season	Begin	End	Total Catch	Limit	Limit Remaining	% Taken
1st Season	01-JAN-11	10-JUN-11	72	250	178	29%
2nd Season	10-JUN-11	01-SEP-11	0	5	5	0%
3rd Season	01-SEP-11	31-DEC-11	0	35	35	0%
			72	**290**	**218**	**25%**

Deep-water species complex: sablefish, rockfish, deep-water flatfish, rex sole and arrowtooth flounder. Shallow-water species complex: pollock, Pacific cod, shallow-water flatfish, flathead sole, Atka mackerel, and 'other species'.

No apportionment between shallow-water and deep-water fishery complexes during October 1 to December 31 (300 mt allocated).

Other hook-and-line fisheries means all hook-and-line fisheries except sablefish and demersal shelf rockfish in the Southeast District.

Halibut mortality for the demersal shelf rockfish fishery in Southeast District is not listed due to insufficient observer coverage.

Note: All weights are in metric tons.

Report run on: January 28, 2011 5:16 AM

Status of FMP Amendments
January 28, 2011

FMP Amendment Status: Actions Since December 2010	**Date of Council Action**	**Start Regional Review**	**Transmittal Date of Action to NMFS HQ for Review**	**Proposed FMP Amendment Notice of Availability Published**	**Proposed Rule Published in Federal Register**	**Final Rule or Notice of Approval Published in Federal Register**
Amendment 30 (KTC) – Arbitration System Changes	June 2008	PR: 1/28/09				
Amendment 31 (KTC) – C-Share Active Participation	June 2008					
Amendment 34 (KTC) – Adjustments to GOA sideboards for BSAI crab vessels	Oct 2008	PR:3/29/10				
Amendment 37 (KTC) – Exemption to west region landing requirements for WAG	April 2010	PR: 11/8/10	**PR: 1/25/11**	**February 2, 2011** **EOC: April 4, 2011**		
Amendment 38 (KTC) – Crab ACLs Revise rebuilding schedule for snow crab	October 2010					
Amendment 41 (KTC) – Crab regional emergency relief	December 2010					
Amendment 11 (Scallop FMP) – Weathervane scallop ACL, move non-weathervane species to EC	October 2010					
Amendment 83 (GOA) Pacific cod sector splits	December 2009					
Amendment 86 (GOA) – fixed gear endorsement for Pacific cod Approved September 30, 2010	June 2009	PR:12/4/09 **FR: 1/28/11**		July 2, 2010 75 FR 38452 EOC: August 31, 2010	July 23, 2010 75 FR 43118 EOC: Sept. 7, 2010	
Amendment 86/76 – Observer Restructuring	October 2010					

Status of FMP Amendments
January 28, 2011

FMP/Regulatory Amendment Status: Actions Since December 2010	Date of Council Action	Start Regional Review	Transmittal Date of Action to NMFS HQ for Review	Proposed FMP Amendment Notice of Availability Published	Proposed Rule Published in Federal Register	Final Rule or Notice of Approval Published in Federal Register
Amendment 88 (GOA)-Central GOA rockfish program	June 2010					
Amendment 89 (GOA) Tanner crab protection	October 2010					
Amendment 93 (BSAI)-Modify Amd 80 sector coop formation criteria	February 2010					
Amendment 97 (BSAI) – Amd 80 lost vessel replacement	June 2010					
Amendments to all FMPS to authorize permit fees (101/92/36/14/10)	October 2009					
Groundfish/Crab Regulatory Amendments						
Steller sea lion protection measures	NMFS	FR: 11/19/10	FR: 11/26/10			**December 13, 2011 75 FR 77535 EOC: 2/28/11**
BSAI 2011/2012 harvest specifications	October 2010	PR: 11/4/10 **FR: 1/3/11**	PR: 11/22/10		**December 8, 2010 75 FR 76372 EOC: 1/7/11**	
GOA 2011/2012 harvest specifications	October 2010	PR: 10/30/10 **FR: 12/29/10**	PR: 11/23/10		**December 8, 2010 75 FR 76352 EOC: 1/7/11**	
Revisions to MRAs in the BSAI arrowtooth flounder fishery	October 2010					
Suspend GRS requirements	June 2010	ER: 10/19/10	ER: 11/29/10			**December 15, 2010 75 FR 78172 Effective through June 13, 2011**

Status of Regulatory Amendments
January 28, 2011

Regulatory Amendment Status: Actions Since December 2010	**Date of Council Action**	**Start Regional Review of Rule**	**Transmittal Date of Rule to NMFS Headquarters**	**Proposed Rule in *Federal Register***	**Final Rule Published in *Federal Register***
Groundfish/Crab Regulatory Amendments					
Data collection program to assess effectiveness of Bering Sea Chinook salmon IPA to minimize bycatch	December 2009 Reviewed by Council 10/10				
BSAI fixed gear parallel fishery management measures	June 2009	PR: 6/3/10			
Observer Program regulation revisions	June 2008	PR: 2/25/09 FR: 5/7/10	PR: 9/8/09 FR: 8/5/10	September 30, 2009 74 FR 50155 EOC:October 30, 2009	November 10, 2010 75 FR 69016 Effective 12/10/10
CDQ regulation of harvest	MSA Council 6/07	PR: 12/17/08	PR: 6/10/10	July 13, 2010 75 FR 39892 EOC: August 12, 2010	
Remove preliminary annual report requirement for AFA co-ops	NMFS	PR: 9/21/10	PR: 11/29/10	**December 20, 2010 75 FR 79333 EOC: January 4, 2011**	
Miscellaneous R&R revisions, including revisions to eLandings	NMFS	PR: 6/7/10	**PR: 1/8/11**		
Notice of fee percentage for halibut/sablefish IFQ cost recovery	NMFS				**December 10,2010 75 FR 76957 Effective 12/10/10**

Status of Regulatory Amendments
January 28, 2011

Regulatory Amendment Status: Actions Since December 2010	**Date of Council Action**	**Start Regional Review of Rule**	**Transmittal Date of Rule to NMFS Headquarters**	**Proposed Rule in *Federal Register***	**Final Rule Published in *Federal Register***
Halibut Regulations					
Remove halibut/sablefish quota from initial recipients who never have fished or transferred quota	June 2006		PR: 8/12/09	August 23, 2010 75 FR 51741 EOC: September 22, 2010	
Clarify charter logbook submission requirements	NMFS	PR:1/12/10 FR: 10/8/10	PR: 4/2/10 **FR: 1/12/11**	April 27, 2010 75 FR 22010 EOC: May 12, 2010	
Halibut catch share plan	October 2008	**PR: 1/28/10**			
Establish new minimum vessel ownership criteria for using hired skipper of 12 months and 20% interest	December 2007				
Add 3 new communities to GOA CQE Program	December 2010				
Other					
Revision to the Fisheries Loan Program and to include the CDQ and Crab IFQ lending programs	NMFS			May 5, 2010 75 FR 24549 EOC: June 4, 2010	**December 10, 2010** **75 FR 78619** **Effective: 1/18/11**

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

AGENDA B-2
Supplemental
FEBRUARY 2011

January 25, 2011

RECEIVED
JAN 25 2011

Eric Olson, Chairman
North Pacific Fishery Management Council
605 W. 4th Avenue, Suite 306
Anchorage, AK 99501-2252

Dear Mr. Olson:

Last October, the North Pacific Fishery Management Council (Council) requested NMFS to report back to the Council on catch monitoring and accounting issues associated with voluntary cooperative formation in the freezer longline Pacific cod fishery. The freezer longline cod fleet began fishing as a voluntary cooperative in August of 2010, and members of the cooperative have worked with NMFS Inseason Management staff to ensure that Pacific cod total allowable catch and halibut prohibited species catch amounts were not exceeded. On December 22, 2010, the Longline Catcher Processor Subsector Single Fishery Cooperative Act (Act) was signed by President Obama. In brief, the Act allows freezer longline vessels participating in the Bering Sea and Aleutian Islands area directed Pacific cod fishery to form a single cooperative and requires that NMFS implement enabling regulations within two years of receiving a request from holders of at least 80 percent of the eligible licenses as defined in the Act.

Fishery cooperatives formed voluntarily or by regulation authorized under a fishery management plan create new demands for enhanced catch accounting, monitoring, and enforcement. NMFS believes that fishery management programs that include special privilege access to the harvest of fishery resources, including cooperatives, should be developed with sufficient safeguards to meet the following objectives:

- An effective harvest cooperative management program must implement measures to minimize potential of participants to misreport catch. In a privileged access program, participants have a strong incentive to maximize the value of each pound of their quota. One way to do this is to engage in practices such as illegal high grading or under-reporting catch. An effective harvest cooperative management program must recognize that the incentives to engage in these types of activities increase.
- All concerned parties (NMFS, other management agencies, and fishery participants) must have access to a single authoritative record that clearly details the amount of quota harvested. To the extent this record is edited, all parties must receive, or have access to, the edited record. These programs also impose additional burdens on industry to monitor their own allocations of catch and to cease fishing when those allocations are reached, which requires that program participants have quick access to catch accounting data so that they can monitor their quotas.

To meet these objectives in other cooperative and quota-based fisheries off Alaska, NMFS has developed a package of catch accounting and monitoring measures designed to ensure legally defensible catch accounting for allocated species. For catcher/processors, this package includes requirements that all catch be weighed on NMFS approved scales; increased observer coverage to ensure that all hauls or sets are observed; and provision of an observer sampling station.

NMFS and the Freezer Longline Coalition, an industry trade group representing all the eligible participants defined by the Act, agree the current catch-monitoring program does not meet the standards

developed for other quota-based programs. We believe that catch monitoring and accounting regulations similar to those found in other quota fisheries are necessary in the freezer longline Pacific cod fishery and that these regulations should apply to all vessels irrespective of their participation in a voluntary or regulated cooperative. However, catch-weighing in this fishery presents unique problems and developing a program that provides accurate and defensible data will require new solutions. For example, it may be possible to develop regulations giving vessels the option, under certain circumstances, of using scale weights (round or bled) of Pacific cod as the source of catch accounting data for landed Pacific cod.

Members of the Freezer Longline Coalition have worked closely with NMFS staff to explore possible options for improved catch accounting under a cooperative structure, and we will continue a collaborative approach. NMFS staff held a public workshop in Dutch Harbor on December 1, 2009, to better understand the vessels participating in the freezer longline fishery. Following this workshop, NMFS staff visited 21 freezer longline vessels in Dutch Harbor and Seattle and discussed catch handling protocols and factory operations with vessel crew. Discussion of options for enhanced accounting was presented to the Council in April 2010 (Options for Catch Accounting in the BSAI and GOA Pacific Cod Catcher Processor Hook and Line Fishery discussion paper). In July 2010, NMFS staff observed the sea trials of a new scale system to test the feasibility of using scales to obtain a total weight by haul for landed Pacific cod.

In February 2011, NMFS staff will meet to more fully outline regulatory approaches. Following this meeting, we intend to work closely with participating vessel owners and the Freezer Longline Coalition to discuss monitoring components and further develop a preferred alternative for enhanced monitoring. If participants in the freezer longline sector desire, we will also host a workshop to engender discussion and input on a new monitoring program. Based on input from the freezer longline sector, NMFS will develop the necessary analytic documents to support a regulatory amendment to our regulations. NMFS staff will coordinate with the Council during the development of the analysis and associated regulations. We anticipate that the earliest possible implementation date for a revised catch monitoring program based on scale weights for Pacific cod would be 2013. While we understand that some vessels may be installing scales to weigh all catch as early as this year, we do not believe that scale weights can be used by NMFS to estimate Pacific cod catch without a regulatory infrastructure in place.

Sincerely,

Robert D. Mecum

for James W. Balsiger, Ph.D.
Administrator, Alaska Region

The Use of Electronic Monitoring (EM) Technologies in Alaskan Fisheries

Prepared by
National Marine Fisheries Service
January, 2011

Introduction

The term electronic monitoring (EM) is very broad and can include a wide range of technologies such as Vessel Monitoring Systems (VMS); electronic logbooks; video (including cameras, digital recording systems and monitors); and the integration of video with other data sources such as radio frequency identification (RFID) tag readers, net pinger hydrophones, winch sensors, and hydraulic pressure monitors. For purposes of this paper, we use the term EM to describe the use of video cameras, which may be integrated with other electronic sources of data.

EM has become an increasingly viable technology for monitoring some types of fishery activities and enhancing observers' ability to collect data. As early as 2002, NMFS began exploring the use of EM technology in Alaskan longline fisheries as a tool to ensure compliance with the use of seabird deterrence devices and as a management tool to identify seabirds caught on a longline. In 2004, the Council assessed the range of EM being used in fisheries (MRAG 2004) and, by 2006, the National Marine Fisheries Service (NMFS) completed several EM projects that helped to assess the general efficacy of EM technology in commercial fisheries. These projects included evaluating the effectiveness of EM technology to monitor the discard of prohibited species catch (PSC) on a factory trawler and monitor and enumerate discard aboard rockfish catcher vessels in the Gulf of Alaska.

At the June 2006 North Pacific Fisheries Management Council (NPFMC) meeting, NMFS presented a discussion paper about the issues associated with the implementation of EM (Kinsolving 2006). This paper highlighted several issues that needed to be resolved prior to implementation of a large scale EM program. These issues included: 1) the cost of implementing EM, which can be similar to, or higher than, the cost of observers depending on the monitoring goal; 2) difficulty determining how to apportion costs between NMFS and the fishing industry; 3) the ability of EM to quantify species was untested against observer data; and 4) the level of EM technology could become "fossilized" at the time implementation takes place.

Since 2006, EM technologies have continued to evolve and the use of video, in particular, has seen considerable interest. Several different video applications have been developed in the North Pacific and elsewhere and many of these applications have been in experimental settings where their ability to meet identified monitoring objectives were tested and evaluated. Several successful EM video projects have been conducted in Alaska and EM in a surveillance capacity is currently regulated and will expand under Amendment 91. However, to date, we do not have any operational systems in Alaska where we routinely collect the video imagery and extract information from it for fisheries management.

In this paper we summarize the work that has been done evaluating the potential use of EM in commercial fisheries off Alaska and describe the required use of EM in the Amendment 80 and Amendment 91 fisheries. We also provide an update on national and international conferences and workshops to illustrate

how different regions and countries are applying EM in fisheries management and identify several potential candidate applications for EM.

EM Studies in Alaska

Gulf of Alaska Rockfish Fishery

Alaska Groundfish Databank, in conjunction with NMFS, has conducted several studies to assess the efficacy of EM for recording and quantifying the discard of halibut from trawl catcher vessels in the Gulf of Alaska (GOA). These studies sought to address the challenges of large scale implementation, where a fishery would be managed using the data obtained from EM systems; these challenges included: 1) the durability of EM equipment under Alaskan fishing conditions; 2) precision and accuracy of the data collected by EM; 3) infrastructure issues related to cost, enforcement, fleet management, and integration with the catch accounting database; and 4) the need for timely data for quota fishery management

The first of these EM studies was conducted during the summer of 2005 and occurred prior to the implementation of the Rockfish Pilot Program (McElderry 2005). The goals of the study were to: 1) determine if EM systems would perform reliably in Alaskan waters; 2) determine when and where discards occur; 3) identify species of fish being discarded; 4) enumerate halibut discards; 5) determine EM costs; 6) evaluate whether EM could replace observers; and 7) determine if there would be industry support for an EM system.

EM systems were deployed aboard 10 trawl catcher vessels during the GOA rockfish fishery. Two cameras were used to observe the entire trawl deck and two additional cameras were deployed to view each discard chute. At the end of the project, two independent reviewers examined the footage to determine when and where discard occurred and to enumerate halibut. The results of the study demonstrated that EM could be reliable in Alaskan waters and could meet the basic goals of determining when and where discard occurred. One key finding was that the effectiveness and practicality of EM was highest when discard volumes were low. Additionally, the crew rarely used the discard chutes so EM reviewers had to rely on the wide angle cameras that provided coarse footage of the entire deck. Since the crew discarded from multiple locations and discarded multiple species simultaneously it was difficult for EM reviewers to track all discard events. Fish with similar appearance (e.g., species in the flatfish and rockfish families) could only be identified to the family level rather than to species. The project also concluded that although EM might be able to replace some duties of an observer, some level of observer coverage was needed to collect biological information. While industry showed strong support for the program, the costs for EM in this study were higher than that of observer coverage. However the study had intensive onsite technical support so it is possible that the costs might be lower in a fully implemented fishery.

In 2007, NMFS and Alaska Groundfish Databank conducted the first phase of a two phase study to test the ability of EM to obtain accurate halibut counts under the Rockfish Pilot Program (Bonney and McGauley 2008). The goals of Phase I were to 1) determine if it was feasible to restrict halibut discard to only one location, 2) determine if the counts obtained from EM were accurate, and 3) determine if accurate lengths for halibut could be obtained using EM. In this study an EM system was deployed on a single vessel in an experimental setting. Again two cameras were used to observe the entire deck and two cameras viewed the single discard chute. Discard was restricted to only halibut and only one location. NMFS and Alaska Groundfish Databank staff conducted an at-sea census and obtained lengths for each of the halibut discarded to compare with those obtained using EM. Video footage was examined by two independent reviewers at the end of the season. The results of the study showed that it was feasible to discard only halibut and in only one location. The observer-based estimates of halibut weight and numbers were not significantly different from the total (at sea discard census plus landings) values.

Precision of the EM estimates was high, while the precision of the observer estimates was low, in particular at the haul level.

Following on the success of the Phase I study, the Phase II study was conducted during the 2008 Rockfish Pilot Program fishery (Bonney et al. 2009). The goals of the study were to 1) determine the time lags between vessel arrival in Kodiak and data available to quota managers under different scenarios; 2) investigate the development of NMFS catch accounting data base infrastructure for handling EM data and linking EM data to the source delivery; 3) determine whether EM systems can be effectively deployed on a wider variety of vessels fishing under real world conditions; 4) more fully assess the costs associated with various components of an EM program (equipment, support, and analysis); and 5) assess the qualitative effectiveness of EM for quantifying halibut and ensuring compliance with discard rules.

EM was deployed aboard four trawl catcher vessels that represented one cooperative for the entire Rockfish Pilot Program fishery. Each vessel was allowed to design their discard chute. At the end of each trip, the hard drives were removed and mailed to Canada for review. The results showed that accurate counts and lengths of halibut could be obtained using EM but, to be successful, additional crew training was needed and the chutes needed to be more uniform in design. In this study the costs for EM were higher than the cost of observer coverage and the time lag of up to two weeks to receive the data was unacceptable for NMFS and industry quota managers. Both the costs and the time lag were related to the amount of human review necessary to obtain a full census and a length estimate for each halibut. Also, while EM appears to be an appropriate mechanism for accounting for halibut bycatch, it cannot replace a human observer for collecting catch data that must be spatially explicit at the haul level.

Video Analysis

One of the largest costs in the implementation of an EM system is related to the amount of time that is needed for a human to review the video. Depending on the specific monitoring requirements it may be feasible to sample the video to obtain the information required. However if the objective is a full census of halibut PSC discard, then human review of all video footage is necessary.

The time lag before EM data were available to quota managers and the high cost of an EM program were two concerns highlighted in the EM pilot studies conducted in the rockfish fishery; both of these issues were related to the amount of time required for a human to review the video. To address this topic, NMFS contracted with Mamigo, Inc. to test the feasibility of automating the process of video review to obtain counts and lengths of individual halibut PSC. The software developed by Mamigo, Inc. was able to automate the count of halibut and performed the counts much faster than if a human completed the review. However, the lower than expected frame rate and the manner in which the crew discarded the halibut made it difficult to obtain lengths automatically. This software does show promise in lowering the video analysis costs and reducing the review time necessary to obtain a census. Improvements in video equipment and modification of crew sorting behaviors could enhance the speed at which video could be reviewed and enable the software to obtain lengths automatically. This software was developed specifically to automate the count and length measurement of halibut on rockfish trawl catcher vessels; however, with additional software development other applications in different EM fishery programs could benefit from having the video footage automatically parsed down before human review of the video.

Halibut Longline Fleet

Over the past decade, there have been several studies evaluating the potential use of EM in the halibut longline fishery in Alaska. In 2002, the IPHC, under contract to NMFS, investigated options for monitoring bycatch of endangered seabirds in the longline fleet (Ames et al, 2005). That study suggested that EM could produce accurate data and enable compliance evaluation for seabird avoidance devices. Specifically, the EM video observations were successful in detecting streamer line deployment and relative position on 100 percent of the daytime sets when 2 cameras were used. In addition, a high

proportion of the seabird bycatch was able to be detected using EM. However, additional work was needed on species identification of seabirds from the video.

In 2002 and 2004 the IPHC, in collaboration with NMFS, conducted two studies to examine the accuracy of fishing effort and catch composition data collected by EM relative to the traditional at-sea observer method (Ames 2005; Ames et al. 2007). These projects were undertaken aboard commercial fishing vessels under contract to the IPHC. In the first study, the catch data from EM were similar to the data collected by observers; however, the EM data documented fewer fish for 7 of the 17 species categories investigated because the video analyst grouped catch into more general species categories than did the sea sampler following observer methodologies.

Recommendations from the 2002 study, including improved camera configurations, were incorporated into the study design of the 2004 study and agreement between the EM data and the observer data increased. However, the observers recorded slightly fewer individuals of some species categories, which was opposite to the finding in the 2002 study. Although some species identification limitations were found, the studies demonstrated the effectiveness of EM technology for longline fisheries, and indicated the potential role EM could have in the design of a functional and cost-effective monitoring program. The study also highlighted that data provided by human observers are also subject to error and comparisons between EM and observers had no absolute standard of reference in this study.

In 2007, NMFS, the IPHC, and Pacific States Marine Fisheries Commission initiated a study to evaluate the potential of EM as an alternative tool to monitor bycatch on Pacific halibut longline vessels. Specifically, estimates of bycatch (numbers of fish) based on dedicated fishery observer documentation (census) were compared with estimates of bycatch based on review of EM video recordings and, where possible, with estimates based on standard Alaska Fisheries Science Center (AFSC) Observer monitoring (Cahalan et al. 2010). This study was conducted on commercial fishing vessels under normal fishing conditions, building upon the previous studies (Ames 2005; Ames et al. 2007) which were conducted on chartered vessels.

EM systems were installed on four vessels that voluntarily participated in this study. Data were collected on 13 fishing trips in the Bering Sea and the Gulf of Alaska. Unanticipated technical problems were experienced that resulted in incomplete data capture where video images were not recorded for some fishing events and fishing periods. These technical issues were resolved in all cases. Note however that both EM –based and observer –based monitoring methods experiences lapses in data collection. Lapses in EM data capture tended to encompass large portions of, or entire, fishing trips while lapses in observer data capture tended to be interspersed within individual trips.

Comparison of species identification of catch between standard observer monitoring methods (monitoring a sample of each set), complete observed-based documentation of catch (a nominal census of catch), and EM-based documentation of catch (a nominal census of catch) showed statistically unbiased and acceptable comparability for almost all species except for some that could not be identified beyond the species grouping levels used in management. Similarly, comparisons of total species-specific numbers of fish estimated using EM-collected and observer-collected data showed few statistically significant differences.

Although this study was limited in scope and data collection using standard observer monitoring methods was lacking, catch and bycatch estimates could be estimated from both the EM and observer data collected. Comparisons of catch estimates generated from the two monitoring methods did not show evidence of systemic differences. Hence, based on the results of this limited study, this type of EM could be used as an additional tool for catch monitoring in the commercial halibut fishery. Note however that its potential use would need to be determined by the specific monitoring requirements of each

management application and that EM may not be the best alternative in all situations. While EM is not an alternative to observers for the collection of certain biological specimens (e.g., otoliths, scales, etc.) from the catch, with the further development of EM systems and procedures, estimation of bycatch species composition in numbers of fish in the Pacific halibut fishery could be achieved with a high degree of accuracy.

EM in the Amendment 80 and Amendment 91 fisheries

Amendment 80 Bin Monitoring

During the development of Amendment 80 to the Bering Sea and Aleutian Islands (BSAI) Fishery Management Plan, there was concern about pre-sorting of catch inside the bin prior to the observer's sample. NMFS was unable to entirely ban crew from entering the bin for all vessels; therefore, three bin monitoring options were set in regulation to help ensure that no presorting activities were occurring and the observer sample consisted of unsorted catch. One of these options relies on EM.

According to the bin monitoring requirement no crew may enter any bin or tank preceding the point where the observer samples unsorted catch, unless certain criteria are met. The vessel owner or operator must comply with this requirement unless they have requested, and NMFS has approved, one of the following 2 monitoring options:

- Line of sight option: From the observer sampling station and the location from which the observer collects unsorted catch, the observer must be able to see all areas of the bin where crew could be located. This requirement may be accomplished by creating a viewing port inside the bin.

- Video option: A vessel may provide and maintain cameras, a monitor, and a digital video recording system for all areas of the bin where crew could be located. The video data must be maintained and made available to NMFS upon request for no less than a 120 day period.

Prior to implementation of the EM bin monitoring option, NMFS asked several vessels to carry EM systems for one season to test the durability of the systems and allow the vessels time to understand how the systems operated prior to implementation. About half of the vessels participating in the Amendment 80 program have chosen the video bin monitoring option. In this application, EM serves as a compliance monitoring tool for enforcement and allows the observer to monitor all areas of the bin where crew could be located ensuring that pre-sorting does not occur prior to sampling. There were some initial technical issues with the Amendment 80 systems; however, those were quickly resolved and overall, EM works well in this application.

Amendment 91 Salmon Bycatch Monitoring

Amendment 91 to the Fishery Management Plan for Groundfish of the BSAI Management Area is being implemented in January 2011 to manage Chinook salmon bycatch in the Bering Sea pollock fishery. The regulations for Amendment 91 contain the second EM monitoring requirement that NMFS has implemented in Alaska.

Amendment 91 creates Chinook salmon PSC limits on the Bering Sea pollock fishery for the first time. To monitor the Chinook salmon limits, NMFS is striving for a census, or a full count, of Chinook salmon bycatch in each haul by a catcher/processor and each delivery by a catcher vessel. The census method is complicated because NMFS needs to ensure that all salmon bycatch is retained and made available to the observer. Observers cannot be present at the sorting of bycatch aboard pollock trawlers at all times because they are required to complete other duties. Thus, NMFS has implemented a series of

requirements including installation of a video system, with a monitor located in the observer sample station, to provide views of all areas where salmon could be sorted from the catch as well as the secure location where salmon are stored[1]. In this application, EM serves as a compliance monitoring tool for enforcement and allows observers to monitor all areas were salmon could be sorted from the catch. NMFS is currently monitoring the implementation of this new application of EM.

Monitoring global development of EM technology

In addition to the studies and the regulatory implementation of EM, NMFS staff have organized and participated in several national and international conferences and workshops to learn how other regions and countries are applying EM in fisheries management.

In 2008, NMFS, NPRB, and the NPFMC conducted a workshop to assess the state of EM technology across the nation and internationally. One session discussed past pilot studies conducted in the US and Canada. Other sessions included industry perspectives; legal, management, and enforcement concerns; and research and development advancements. The workshop concluded with a synthesis of the discussions (AFSC, 2008). The workshop report identified that EM has potential in the North Pacific but the applicability depends on the specific objectives of the program. In addition, it identified potential directions for further investigation of EM.

For several years, NMFS staff have attended the International Security Conference in Las Vegas. This conference provided useful insight into the realm of possibilities for EM and provided guidance for potential pitfalls often associated when implementing EM programs. In 2010, numerous NMFS staff participated in an international fisheries conference held in Galway, Ireland to learn how other nations were applying advanced technologies to address fisheries management challenges[2]. NMFS staff also attended a European workshop on the use of EM in March of 2010 (Dalskov, 2010) as they too are considering EM for fisheries monitoring applications.

At the national level, a staff member from the regional office and one from the observer program are representatives on the Electronic Monitoring Subcommittee of the National Observer Program Advisory Team. The objective of this subcommittee is to provide recommendations on electronic data collection for observer programs and to coordinate and share electronic monitoring information. The EM committee has been in existence for two years and has provided a valuable mechanism for understanding how other regions are approaching the use of EM and sharing experiences in the North Pacific with others. In particular, our colleagues at the Fisheries Sampling Branch (FSB) of the Northeast Fisheries Science Center (NEFSC) are conducting a pilot program to test the applicability of EM technology to collect catch and fishing effort data aboard commercial vessels. The goal of the study is to evaluate the utility of EM as a means to monitor catch on a real-time basis in the Northeast groundfish sector fleet[3]. We will be

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[1] Discussion of the monitoring requirements for Amendment 91 can be found in section 2.2.5.7 of the Chinook Salmon bycatch Environment Impact Statement (http://www.fakr.noaa.gov/sustainablefisheries/bycatch/salmon/chinook/feis/eis_1209.pdf) and sections 6.3.3-6.3.5 of the final Regulatory Impact Review (http://www.fakr.noaa.gov/sustainablefisheries/bycatch/salmon/chinook/rir/rir1209.pdf).

[2] Conference proceedings available at: http://www.marine.ie/fisherydependentdata/Documents/Book%20of%20abstracts/Book%20of%20Abstracts%20master.pdf.

[3] More information available at: http://www.nefsc.noaa.gov/fsb/Electronic%20Monitoring%20Pilot%20Study/Electronic_Monitoring_Pilot_Study.html

monitoring their progress and gleaning any lessons learned, along with cost information, from their experiences.

What is on the horizon?

Data storage & automated data analysis

Currently, there are no operational EM systems in place in Alaska that routinely extract information from video for science or management. As we described earlier, there are two EM applications in place in Alaska where video is used as a compliance monitoring tool and provides a "real time" view for the observer to monitor for pre-sorting and other crew activity. When needed, the acquisition, review and storage of video from these types of programs is straightforward. However, any application where EM data are used for fisheries management will likely be more complex and require greater infrastructure for both industry and the government. Depending of the specific goals of the EM program, a variety of data transfer, analysis, and storage issues will need to be resolved. For example, if video data were going to be used for quota management then a system would need to be developed for physically moving video files to a facility where they could be reviewed. This could prove challenging from remote locations in Alaska. Additionally, data collected for fisheries management is required to be stored, archived, and accessible for further review and/or use in the prosecution of violations and this would likely require a large investment in data storage infrastructure. Finally, although we have promising results from the first attempt to automate the video data analysis, there is a lot more work that could be done to automate parts, or all, of the video review process.

Freezer longline fleet

Recently, the Longline Catcher Processor Subsector Single Fishery Cooperative Act was signed by President Obama which allows freezer longline vessels participating in the BSAI directed Pacific cod fishery to form a single cooperative. Monitoring and enforcement regulations will need to be developed for this fishery cooperative and it is possible that EM could be applicable to meet some monitoring needs. For example, video might be used to monitor compliance with the use of scales to weigh Pacific cod. Or, in a more complicated scenario, video could be used to estimate the number and composition of fish caught as a supplement to observer sampling. During of the summer of 2010, NMFS staff participated in a test of flow scales aboard a freezer longline vessel and part of this test included the use of EM to monitor that all Pacific cod passed over the flow scale and that the flow scale was functioning properly. The EM system worked well during the test. So, although NMFS has not thoroughly investigated the use of EM in freezer longline fisheries off Alaska, it offers promise. NMFS would be interested in working with the industry to further investigate the potential for EM in monitoring this cooperative.

Small boat fleet

Another possible application of EM is on small vessels as an alternative to an observer. The previous work on hook and line vessels in the Pacific halibut fleet has demonstrated the potential for EM to provide some helpful information on bycatch. In October 2010, the NPFMC passed a motion to restructure the observer program (BSAI Amendment 86 and GOA Amendment 76) whereby all vessels and processors in the groundfish and halibut fisheries off Alaska, regardless of size, would be placed into one of two observer coverage categories. Once implemented, NMFS will have the authority to place observers on small boats and halibut vessels that were previously not covered under the observer program. However, NMFS recognizes that some smaller vessels will not be suitable for observer coverage but could potentially carry EM as an alternative. The Council has asked its Observer Advisory Committee to consider EM and we suggest the small hook and line fleet should be their initial focus. NMFS staff have also been working with several industry members who have expressed an interest in EM on smaller vessels and are seeking funds for further pilot work.

Conclusion

EM is one of many tools that may be used to help accomplish specific objectives. Clarity in the desired objectives is essential. Decisions related to costs, feasibility, and effectiveness will help to determine the right mix of tools needed to achieve them. NMFS is encouraged by the rapid development of EM technologies and believes that they will play an important future role in the routine monitoring of fishing and fish processing activities in Alaska. We will continue to monitor the development of EM and implement EM systems when appropriate and cost effective for the monitoring objectives. All of the projects conducted to date in Alaska have been done with industry participation and collaboration. We believe that continued industry involvement in the development of EM systems will be essential to their future success.

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